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## REMARKS

Reconsideration of the application is respectfully requested for the following reasons:

1. Rejection of Claims 6-10 and 17-19 Under: 35 USC §112, 2nd Paragraph

This rejection has been addressed by:

- amending claim 18, line 8, to correct an antecedence error by reciting –a coolant– rather than "said coolant";
- amending claim 18 to delete the objected-to "whereby" clause, which the Examiner indicates is indefinite because it does not define any structure;
- amending claim 18 to delete "closed circuit," which the Examiner indicates can be interpreted as a closed *electrical* circuit, and which is in any case redundant;
- cancelling claims 20, 23, 37, and 38, thereby rendering moot the specific objections to the language of these claims;
- amending claim 21 to recite "a separate gas pump" rather than "an independently installed fan," in order to overcome the objection to "independently installed" and bring the claim into conformity with the description of element 9 in lines 19-22 on page 12 of the specification;
- amending claim 26 to clarify that each of the tubular structures is installed with exterior and interior cooling fins;
- amending claims 29, 32, and 35 to specify that "said closed coolant structure" refers back to the –closed coolant circulation structure–, and that "said coolant circulation structure" also refers back to the –closed coolant circulation structure–;
- amending claim 35 to clarify that the inlet and outlet pipes are separate pipes; and
- amending claim 40 to clarify that the heating target is heated by heat dissipated by the heat dissipation device (the Examiner will appreciate that although a heat dissipation device is used for cooling, it does so by dissipating heat, the dissipated heat being useable for heating purposes); and

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- amending claim 44 to recite –an– outside of the distributing pipe, and to depend from claim 42 rather than claim 40, in order to correct two antecedence errors.

2. Why Amendments Should Be Entered And Considered

All of the amendments described above are in response to specific objections raised by the Examiner in item 2 on pages 2-5 of the Official Action. The only other amendments to the claims are the amendment of claim 18 to include the limitations of original claim 24, and the amendment of claim 35 to include the limitations of original claim 18.

The amendments merely combine claims that original depended from each other, correct antecedence errors, and clarify certain ambiguities noted by the Examiner without affecting the scope of the claims. Therefore, the amendments do not raise **new issues** that would necessitate a new search.

Furthermore, the amendments clearly do not involve **new matter**, and **could not have been earlier presented** because they are in response to issues first raised by the Examiner in the final Office Action. Finally, the amendments are **necessary** to overcome the rejection under 35 USC §112, 2<sup>nd</sup> Paragraph, and also **place the application in better form for appeal**. Therefore entry of the amendments is respectfully requested.

3. Rejection of Claims 18, 19, 22, 23, 25, 29, 30, 32-34, 37, and 40 Under 35 USC §102(b) in view of U.S. Patent No. 4,742,257 (Carpenter)

This rejection has been rendered moot by the respective combinations of claim 18 with claims 24 and 35.

4. Rejection of Claims 18, 19, 22, 23, 25, 32-34, 37, and 40 Under 35 USC §102(b) in view of U.S. Patent No. 3,610,975 (Onjanow)

This rejection has also been rendered moot by the respective combinations of claim 18 with claims 24 and 35.

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5. Rejections of Claims 20, 21, 26-28, 31, 36, 38, 39, and 41-43 Under 35 USC §103(a) based on various combinations of U.S. Patent Nos. 4,742,257 (Carpenter), 3,610,975 (Onjanow), 4,839,547 (Lardo), 6,114,784 (Nakano), 4,814,653 (Hasegawa), 5,770,899 (Hayashi), and 3,725,705 (Borinski), and Japanese Patent Pub. JP 57-68640 (Koyama)

These rejections have all been rendered moot by the respective combinations of claims 18, 24, and 35.

6. Rejection of Claim 24 Under 35 USC §103(a) in view of U.S. Patent Nos. 4,742,257 (Carpenter) or 3,610,975 (Onjanow) and U.S. Patent No. 4,244,098 (Barcus)

This rejection, which is now applicable to claim 18, is respectfully traversed on the grounds that the Carpenter and Onjanow patents both show integral cooling structures, and on the grounds that while Barcus discloses an independent heat dissipation structure, there is no motivation to include an independent heat dissipation structure of the type taught by Barcus in the integral closed circuit cooling structures disclosed by Carpenter and Onjanow.

In both Carpenter and Onjanow, air is circulated from a fan through a passage on the outside of the motor, past integral heat-dissipating fins, and back into the motor casing. To accomplish this, the passage on the outside of the motor must be in communication with the interior of the motor, and in particular with the area of the motor in which the fan is located. This is easy to accomplish when the baffle and heat dissipating structures (fins) are built into the motor. However, it would be extremely difficult to retrofit such a passage onto a conventional closed casing motor using the structure taught by Barcus, or to otherwise design a motor so that the air passage could run through independent heat dissipating fins.

The Barcus patent is directed solely to the addition of fins, making no provision for cooling passages extending from the interior of the motor, and in fact is explicitly intended to be retrofitted onto "*a fully manufactured dynamo-electric machine.*" There is no suggestion in Barcus to somehow integrate the fins with passages so as to correspond to the fins of either Carpenter or Onjanow. Instead, the fins of Barcus are simply clamped radially onto the finished casing, and held by spring clamps 26.

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Given the difficulty in applying a separate fin structure of the type taught by Barcus to motors of the type taught by Carpenter or Onjanow, there would need to be some reason or advantage before one of ordinary skill in the art would have made the substantial modifications necessary to achieve the combination. However, there is no such reason. The fins of Barcus would not provide any better heat dissipation than the integral fins of Carpenter or Onjanow. It is only in the context of a retrofit to a fully manufactured dynamo-electric machine that use of the fins of Barcus makes sense. Use of separate fins in the motors of Carpenter or Onjanow makes no sense.

The Examiner is reminded of the rule, set forth in MPEP 2141.02, p. 2100-107, that a "prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention (emphasis in the original)." When considered as a whole, it can be seen that the retrofit fin arrangement of Barcus, designed to fit onto completely closed, already manufactured motors, has no obvious applicability to the integral motor structures of Carpenter or Onjanow.

The only advantages of the proposed combination of cooling passages and a separate heat dissipation structure are those described in the present application in connection with Figs. 9, 10, 12, *etc.*, namely:

- (i) the ability to extend the cooling passage for greater heat dissipation, and
- (ii) the ability to add other types of cooling structures such as forced air or liquid coolers to facilitate transfer of heat away from the closed circuit passage and/or direct that the heat at devices that might benefit from heat radiated by the heat dissipation structure.

Neither advantage is apparent from Carpenter, Onjanow, or Barcus. Therefore, the proposed combination could only have been made in light of the hindsight provided by Applicant's disclosure.

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The advantage advanced by the Examiner, to "*enable the heat dissipation to be formed separately from the casing and incorporate in the machine independently from the casing*," must be considered in the context of the teachings of Barcus, which are directed to "*fully manufactured dynamo-electric machine*" casings that do not already include integral heat dissipation, and that do not include any sort of circulation structures that would make it difficult to retrofit the fin structures. It is respectfully submitted that replacement of integral, cast-in heat dissipation structures as taught by Carpenter and Onjanow already provides optimal ease-of-manufacture, reliability, and cooling performance, and that separating the heat dissipation structures would only cause manufacturing difficulties and inferior performance.

Consequently, it is respectfully submitted that the Barcus patent would not have suggested modification of the integral structures of Carpenter and Onjanow to somehow separate the cast-in heat dissipation structure from the casing, and withdrawal of the rejection of claim 24 (now included in claim 18) under 35 USC §103(a) is respectfully requested.

7. Rejection of Claim 35 Under 35 USC §103(a) in view of U.S. Patent Nos. 4,742,257 (Carpenter) or 3,610,975 (Onjanow) and U.S. Patent No. 5,770,899 (Hayashi)

This rejection is respectfully traversed on the grounds that the Carpenter and Onjanow patents both show integral cooling structures, and on the grounds that while Hayashi discloses input and output pipes, there is no motivation to include such input and output pipes in the integral closed circuit cooling structures disclosed by Carpenter and Onjanow.

As noted above, in both Carpenter and Onjanow, air is circulated from a fan through a passage on the outside of the motor, past integral heat-dissipating fins, and back into the motor casing. To accomplish this, the passage on the outside of the motor must be in communication with an area of the motor in which the fan is located. In contrast, the coolant of Hayashi is confined to a passage that encloses the stator coil only. There is no room for a fan, and nothing that could turn the fan. The moving portion of the motor of Hayashi is *outside* the stator unit and is not exposed to coolant. While piped coolant for a stator coil may therefore be known from the

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teachings of the Hayashi patent, there is nothing in Hayashi to suggest that such piped coolant has obvious applicability to the motors of Carpenter and Onjanow, which rely on the fan to force air through the passage.

It is therefore again respectfully submitted that the proposed combination of references could only have been made with the assistance of hindsight not available to the ordinary artisan at the time the claimed invention was made, and that the rejection of claim 35 USC §103(a) should therefore be withdrawn.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

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